

REMARKS/ARGUMENTS

Claims 1 and 3-20 are pending. The Office Action rejects claims 1-5 under 35 U.S.C. §103 as unpatentable over Kilpatrick (U.S. 6,742,124) in view of Chan (U.S. 6,697,844) and Duffey (U.S. Pub. 2004/0243501), and rejects claims 6-20 under §103 as unpatentable over Kilpatrick in view of Haigh (U.S. Pub. 2003/0004716), Chan, and Duffey. These rejections are respectfully traversed.

The Cited References Fail to Disclose Each and Every Feature Recited in the Claims.

To support a *prima facie* case of obviousness, the Examiner must demonstrate that each feature recited in the claims is found in the cited art, or provide explicit reasoning to support the finding that the features would be obvious to one of skill in the art at the time the invention was made. *See* M.P.E.P. §§ 2141, 2142. The Office Action asserts that each and every claimed feature is found in at least one of the cited publications. Applicants respectfully disagree.

Independent claim 1 recites, *inter alia*,

calculating a Levenshtein matrix of a first string and a second string; ...
determining a **longest diagonal of equal hamming distance** within the Levenshtein matrix; and
determining a substring **corresponding to the longest diagonal within said Levenshtein matrix**, the substring being the **largest common substring** of the first and second strings.

Independent claims 6 and 14 recite similar features. The Office Action admits that Kilpatrick fails to disclose determining a largest common substring, but asserts that Chan discloses determining a longest diagonal of equal hamming distance within the Levenshtein matrix. Specifically, the Office Action alleges that Chan describes searching for a longest common substring (*e.g.*, in an email object; col. 9:2-6), and that the present specification indicates that “longest diagonal is the same as the largest common substring.” Applicants respectfully disagree.

Initially, it is respectfully noted that the portion of the present specification referenced by the Examiner indicates that the largest common substring of two strings may be identified by determining the longest diagonal of equal hamming distances of lowest value. (Page 6, lines 13-19.) This description occurs in the context of a Levenshtein matrix generated for the two strings,

and does not indicate that the “longest diagonal is the same as the largest common substring” for any and every common substring that is identified by any method, as suggested by the Office Action.

Chan merely describes a separate method of searching for a largest common substring, and describes contexts in which it may be useful to find a largest common substring. There is no suggestion in the cited portions of Chan that the largest common substring of two strings results from, or is in any way related to, a Levenshtein matrix. This deficiency is not remedied by the present specification’s description of a longest diagonal of equal hamming distances in relation to a Levenshtein matrix, since no such distances or matrix is described by Chan. There is also no indication in Chan or Kilpatrick of how to use a Levenshtein matrix to determine the largest common substring, or why one of skill in the art would attempt to do so. Thus, the mere fact that Chan discloses a largest common substring is insufficient to render the claimed determining a substring corresponding to the longest diagonal within a Levenshtein matrix obvious.

In fact, there is simply no suggestion in Chan or Kilpatrick that the Levenshtein matrix described in Kilpatrick can be used in place of Chan’s method of finding the largest common substring. This point is described in further detail in the Amendment filed December 30, 2009. In response, the Examiner asserts that Chan “teaches how to determine the largest common substring” and, therefore, the combination of references teaches all the features recited in claim 1. However, Chan’s mere disclosure of one method to determine a largest common substring is simply not equivalent to the specific steps recited in the claims. Specifically, Chan’s method of determining a largest common substring is entirely separate from any Levenshtein matrix or hamming distances and, therefore, does not disclose the specific steps of determining a longest diagonal of equal hamming distance within the Levenshtein matrix and determining a substring corresponding to the longest diagonal within said Levenshtein matrix as recited in the independent claims.

The Office Action further argues that Chan and Haigh both teach “edit distance” and the Levenshtein matrix is “also called as edit distance.” Applicants respectfully disagree. The independent claims do not recite merely “a Levenshtein matrix” or “edit distance” – they recite specific method steps that, *inter alia*, generate or manipulate a Levenshtein matrix. Regardless

of whether a Levenshtein matrix is always equivalent to every “edit distance” recited in the references, which Applicants do not concede, merely disclosing an “edit distance” is insufficient to render the specific claim steps obvious.

The other cited references fail to remedy the deficiencies of Chan and, therefore, the references fail to render the independent claims obvious, whether considered alone or in combination. The dependent claims are allowable for at least the same reasons as the independent claims, and are patentable for additional reasons. Withdrawal of all pending rejections is respectfully requested.

The Proposed Combination Would Not Result in the Claimed Invention.

Even if combined as suggested by the Office Action, the cited references fail to result in the claimed invention. Kilpatrick merely describes an intrusion detection system that examines potential intrusion-related sequences to identify differences between the sequences and known-good system call sequences. Chan and Haigh each disclose a method for calculating a largest common substring that is completely independent from, and unrelated to any Levenshtein matrix. There is no suggestion that Kilpatrick’s intrusion-detection system can be modified to calculate a largest common substring from the Levenshtein matrix, and no suggestion in Chan or Haigh that their largest common substring techniques can be adapted to use a Levenshtein matrix.

At best, a combination of Kilpatrick with Chan and/or Haigh would result in an intrusion detection system as described by Kilpatrick, which also uses the methods of Chan and/or Haigh to calculate a largest common substring between the sequences. Such a calculation is unrelated to Kilpatrick’s system, and there would be no reason to add it. Therefore, at least the features of determining a longest diagonal of equal hamming distance within the Levenshtein matrix and determining a substring corresponding to the longest diagonal within said Levenshtein matrix, the substring being the largest common substring of the first and second strings would not be present in the proposed combination of references suggested by the Office Action. For at least this reason, Office Action fails to support a *prima facie* case of obviousness, and the independent claims are allowable over the cited art. The dependent claims are allowable for at least the same reason as the claims from which they depend, and are patentable for additional reasons.

The Office Action Fails to Support a *Prima Facie* Case of Obviousness.

The analysis supporting a rejection under §103 must be made explicit. That is, an obviousness rejection cannot be sustained by mere conclusory statements; there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness. M.P.E.P. §§ 2141, 2142 (citing *In re Kahn*, 441 F.3d 977, 988, 78 USPQ2d 1329, 1336 (Fed. Cir. 2006); *KSR International Co. v. Teleflex Inc.*, 550 U.S. 398, 82 USPQ2d 1385 at 1396 (2007)) (emphasis added). Where an articulated reasoning to support the legal conclusion is not provided, the examiner fails to make a *prima facie* case of obviousness. M.P.E.P. §2142.

The Office Action asserts that it would have been obvious to combine the teachings of Kilpatrick and Chan “to reduce the amount of latency by caching and prefetching components of electronic mail messages using information relating to similar objects that were previously supplied by the client to the mail server.” However, this reasoning is unrelated to the methods and systems described by Kilpatrick, which relate to intrusion detection based on analysis of system calls. There is no indication in the Office Action of why it would be obvious to modify an intrusion detection system to reduce email latency, or even why one of skill in the art would contemplate or desire such a modification.

In fact, the alleged motivation for combining Kilpatrick and Chan appears to be merely a copy of a problem relating to caching and prefetching email messages described in Chan, combined with an advantage Chan indicates is provided by his system. This is not the articulated reasoning with some rational underpinning required by the MPEP and *KSR*, and is insufficient to support a finding of obviousness.

Further, to rely on a reference under §103, the reference must be analogous prior art. “Under the correct analysis, any need or problem known in the field of endeavor at the time of the invention and addressed by the patent [or application at issue] can provide a reason for combining the elements in the manner claimed. “ M.P.E.P. §2141.01(a) (citing *KSR International Co. v. Teleflex Inc.*, 550 U.S. 398, 82 USPQ2d 1385, 1397 (2007)) (emphasis added). Although a reference from a field different from that of the applicant’s endeavor may be pertinent, it must be one that “logically would have commended itself to an inventor’s attention in considering his or her invention as a whole.” *Id* (emphasis added). The combination of

references proposed by the Office Action is improper at least because Cahn is non-analogous art, and the Office Action fails to show that it is otherwise pertinent to the claims.

Chan describes methods of reducing the amount of data transmitted between an email server and a client using caching techniques. Such a reference would not have “commended itself” to Applicants’ attention, since email caching is unrelated to the subject application, and Chan as applied does not address any problem described by the present application or identified by the Office Action. The Office Action also fails to show that the caching methods described in Chan are pertinent to the present application, or to indicate why one of skill in the art would look to Chan’s disclosure to address a problem in Kilpatrick or in the present application. Therefore, Chan is not analogous art, and the combination is improper.

For at least these reasons, the Office Action fails to support a *prima facie* case of obviousness. Withdrawal of the rejections and reconsideration is respectfully requested.

Kilpatrick Teaches Away from Using a Levenshtein Matrix as Recited.

As discussed during the interview conducted December 3, 2008 and described in further detail in the December 30, 2008 Amendment, Kilpatrick indicates that Levenshtein distances are preferable to hamming distances because Levenshtein distances “provide a smoother, more graduated distance metric” (col. 9, lines 30-31). Kilpatrick never uses hamming distances to identify a largest common substring between two strings, or to do so based on entries in a Levenshtein matrix as recited in the independent claims. Since Kilpatrick teaches that hamming distances are undesirable for use as distance metrics, the reference as applied teaches away from the use of hamming distances as recited in the independent claims. Thus, the proposed modification of Kilpatrick is contrary to the cited art, and fails to support a *prima facie* case of obviousness. For at least this reason, the independent claims are allowable over the art as applied. The dependent claims are allowable for at least the same reason as the claims from which they depend, and are patentable for additional reasons.

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Amdt. dated
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CONCLUSION

In view of the foregoing, Applicants believe all claims now pending in this Application are in condition for allowance. The issuance of a formal Notice of Allowance at an early date is respectfully requested.

If the Examiner believes a telephone conference would expedite prosecution of this application, please telephone the undersigned at 202-481-9900.

The Commissioner is authorized to charge any fees due or credit any overpayment to the deposit account of Townsend and Townsend and Crew LLP, Deposit Account No. 20-1430.

Respectfully submitted,

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